

Appl. No.: 10/055,771
Docket No.: H2022-00002
Amdt. dated May 16, 2003
Reply to Office action December 19, 2002

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A heat spreading ~~connector~~ interposer comprising:

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at least one flexible electrical contact supported by a housing such that a first end of said at least one flexible electrical contact projects outwardly from a first side of said housing and a second end of said at least one flexible electrical contact projects outwardly from a second side of said housing, wherein said housing comprises a lamination having at least one layer of thermally conductive material supported by at least one layer of a dielectric material so that a portion of said at least one flexible electrical contact is (i) engaged, and (ii) in thermal communication with said at least one layer of thermally conductive material.

2. (Original) A heat spreading ~~connector~~ interposer according to claim 1 wherein said housing comprises a plurality of dielectric layers and a plurality of thermally conductive layers.

3. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 1 wherein said dielectric layers comprise a thermally conductive insulating insulator.

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4. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 1 wherein said dielectric layers each have a thickness of about .003 inches to about .007 inches.

5. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 1 wherein said at least one layer of thermally conductive material has a thickness of about .001 inches to about .005 inches.

AI 6. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 1 wherein said portion of said at least one flexible electrical contact is ~~in thermal communication~~ engaged with an annular edge of each of said at least one layers of thermally conductive material.

7. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 1 wherein said housing defines a plurality of holes each having a thermally conductive liner that is arranged in thermal communication with said at least one layer of thermally conductive material wherein each of said flexible electrical contacts are thermally engaged with a portion of said liner.

8. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 1 wherein said at least one layer of thermally conductive

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material is sized larger than said housing so as to form at least one wing projecting outwardly from at least one edge of said housing so as to dissipate heat into the ambient environment.

9. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 8 wherein said at least one wing is engaged in thermal communication with a heat sink.

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10. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 8 wherein at least one discrete wing is thermally bonded to at least one thermally conductive layer.

11. (Currently amended) A heat spreading ~~connector~~ interposer comprising:

plurality of compressible electrical contact elements each having a first end and a second end and supported by a housing so that said first end projects outwardly from a first side of said housing and said second end projects outwardly from a second side of said housing; wherein

said housing is formed from at least one layer of thermally conductive material supported by at least one layer of a dielectric material so that a portion of each of said plurality of compressible electrical contacts is engages an annular
dg of said at least one layers of thermally conductive material so as to be in

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thermal communication with said at least one layer of thermally conductive material.

12. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 11 wherein at least one thermally conductive layer comprises a lead frame and said two layers of dielectric material comprise a polymer disposed in surrounding relation to portions of said lead frame.

13. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 11 wherein said housing defines a plurality of holes each having a portion of said lead frame arranged in thermal communication one of said compressible electrical contacts.

14. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 11 wherein said lead frame is sized larger than said housing so as to form at least one wing projecting outwardly from at least one edge of said housing so as to form a heat radiator to dissipate heat into the ambient environment.

15. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 14 wherein said at least one wing is engaged in thermal communication with a heat sink.

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16. (Currently amended) A heat spreading ~~connector~~ interposer according to claim 14 wherein at least one discrete wing is thermally bonded to a portion of said lead frame.

17. (Currently amended) A method of heat dissipation for an electronic device, comprising:

providing an ~~connector~~ interposer comprising plurality of flexible electrical contacts supported by a housing wherein said housing is formed from at least one layer of thermally conductive material supported by at least one layer of a dielectric material so that a portion of each of said plurality of flexible electrical contacts is (i) engaged, and (ii) in thermal communication with said at least one layer of thermally conductive material;

a. positioning said ~~connector~~ interposer intermediate an electronic device and a printed circuit board; and

b. conducting heat away from said electronic device through said at least one layer of thermally conductive material.

18. (Original) The method of claim 17 further comprising providing a heat transfer wing to said at least one layer of thermally conductive material.

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19. (Original) The method of claim 18 wherein said heat transfer wing is thermally engaged with a heat transfer device.

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20. (Original) The method of claim 19 wherein said heat transfer device is selected from the group of heat transfer devices consisting of printed circuit boards, heat transfer devices attached to printed circuit boards, fins extended into ambient air from said thermally conductive material, passive heat transfer devices, pins associated with the electronic device, and active heat transfer devices.

21. (Currently amended) The method of claim 17 wherein said ~~connector~~ interposer connects at least one of a land grid array mounted electronic device and a pin grid array mounted electronic device.

22. (Canceled)

23. (Canceled)

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Amendments to the Drawings:

The attached sheet of drawings includes changes to Fig. 2. This sheet, which includes Figs. 1-2 replaces the original sheet including Figs. 1-2.

Attachment: Replacement Sheet